Serial No.: 10/802,118
Group Art Unit: 2633
Examiner: Kinfe Michael Negash

Amendment to the Claims

1 (Original). An optical channel regulator, comprising:

an electrically variable optical attenuator receiving an optical signal, the attenuator operating to attenuate the optical signal responsive to a feedback control signal and to provide an attenuated optical signal;

a tapped optical coupler receiving the attenuated optical signal of the attenuator, the optical coupler operating to provide substantially all of the attenuated optical signal as an output and to provide a remaining portion of the attenuated optical signal as a tapped output;

an optical detector receiving the tapped output and providing an electrical signal representing the attenuated optical signal; and

a comparator receiving the electrical signal of the optical detector and a reference signal, the comparator operating to compare the electrical signal, the reference signal, and responsive to the comparison to provide the feedback control signal to the attenuator.

2 (Original). The optical channel regulator of claim 1 further comprising:

a second tapped optical coupler receiving an input optical signal, the second tapped optical coupler providing substantially all of the input optical signal as the optical signal received by the electrically variable optical attenuator and providing a remaining portion of the input optical signal as a tapped output; and

a second optical detector receiving the tapped output from the second tapped optical coupler and providing an electrical signal representing the input optical signal.

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3 (Original). An optical regulator assembly comprising:

a plurality of optical channel regulators, each optical channel regulator comprising:

an electrically variable optical attenuator;

a tapped optical coupler;

an optical detector; and

a comparator; and

a microprocessor, operable to:

receive the electrical signal representing the attenuated optical signal from each of the plurality of optical channel regulators;

generate a plurality of reference signals responsive to the electrical signals; and

provide a reference signal to the comparator in each of the plurality of optical channel regulators.

4 (Original). The optical channel regulator of claim 3, wherein each optical channel regulator further comprises:

a second tapped optical coupler receiving an input optical signal, the second tapped optical coupler providing substantially all of the input optical signal as the optical signal received by the electrically variable optical attenuator and providing a remaining portion of the input optical signal as a tapped output; and

a second optical detector receiving the tapped output from the second tapped optical coupler and providing an electrical signal representing the input optical signal.

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5 (Original). An optical channel regulator assembly comprising:

a plurality of optical channel regulators, each optical channel regulator comprising:

an electrically variable optical attenuator;

a tapped optical coupler;

an optical detector; and

a comparator; and

a microprocessor, operable to:

receive the electrical signal representing the input optical signal from each of the plurality of optical channel regulators;

generate a plurality of reference signals responsive to the electrical signals; and

provide a reference signal to the comparator in each of the plurality of optical channel regulators.

6 (Original). The optical channel regulator of claim 5, wherein each optical channel regulator further comprises:

a second tapped optical coupler receiving an input optical signal, the second tapped optical coupler providing substantially all of the input optical signal as the optical signal received by the electrically variable optical attenuator and providing a remaining portion of the input optical signal as a tapped output; and

a second optical detector receiving the tapped output from the second tapped optical coupler and providing an electrical signal representing the input optical signal.

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7 (Original). A multiple channel wavelength division multiplexed communication system comprising:

a plurality of transmission channels;

a plurality of optical regulators operable to receive a plurality of optical signals from said plurality of transmission channels, each optical regulator comprising:

an electrically variable optical attenuator;

a tapped optical coupler;

an optical detector; and

a comparator;

a first microprocessor, operable to:

receive an electrical signal representing the attenuated optical signal from each of the plurality of optical regulators;

generate a plurality of reference signals responsive to the electrical signals; and

provide a reference signal to the comparator in each of the plurality of optical regulators;

an optical combiner operable to receive a plurality of said attenuated signals;

a first optical amplifier operable to receive an output signal from said optical combiner;

a second optical amplifier operable to receive an output signal from said first optical amplifier;

a third optical amplifier operable to receive an output signal from said second optical amplifier;

an optical demultiplexer operable to receive an output signal from said third optical amplifier and recover said plurality of optical signals;

a plurality of optical regulators operable to receive a plurality of optical signals from said optical demultiplexer, each optical regulator comprising:

an electrically variable optical attenuator;

a tapped optical coupler;

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an optical detector; and

a comparator;

a second microprocessor, operable to:

receive the electrical signal representing the input optical signal from each of the plurality of optical regulators;

generate a plurality of reference signals responsive to the electrical signals; and

provide a reference signal to the comparator in each of the plurality of optical regulators; and

a plurality of receive channels operable to receive a plurality of optical signals from said plurality of optical regulators.

8 (Original). The optical channel regulator of claim 7, wherein each optical channel regulator further comprises:

a second tapped-optical coupler receiving an input optical signal, the second tapped optical coupler providing substantially all of the input optical signal as the optical signal received by the electrically variable optical attenuator and providing a remaining portion of the input optical signal as a tapped output; and

a second optical detector receiving the tapped output from the second tapped optical coupler and providing an electrical signal representing the input optical signal.

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